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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

NGUYEN, HOANG V

ART UNIT PAPER NUMBER

2821

DATE MAILED: 09/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/823,206

Applicant(s)

ANGUERA PROS ET AL.

Examiner

Hoang V. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 3/25/05.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 and 14-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,5-11,18 and 20 is/are rejected.
- 7) ☒ Claim(s) 2-4,12,14-17 and 19 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>8/31/04</u> . | 6) <input type="checkbox"/> Other: _____ |

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 5-11 and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Yu (US 4,218,682).

Regarding claim 1, Yu (Figures 2 and 3) discloses a multi-frequency microstrip patch antenna device including a ground plane 22 and a first conductive layer 16, the conducting layer acting as the active patch for the whole antenna device, the active patch being fed at least at a point of the conducting layer, wherein the microstrip patch antenna comprises at least two additional conducting layers 18 and 20 acting as parasitic patches, the parasitic patches being placed underneath the first active patch at different levels between the active patch and the ground plane.

Regarding claims 5 and 6, as applied to claim 1, Figure 2 of Yu shows that the geometry of the active patch and parasitic patches is circular.

Regarding claim 7, as applied to claim 1, Figure 2 of Yu shows that the active patch and parasitic patches have different dimensions.

Regarding claim 8, as applied to claim 1, Yu (col 2 lines 13-16) teaches that the antenna features a multiband behavior at as many bands as patch layers in the antenna arrangement.

Regarding claim 9, as applied to claim 1, Yu (col 2 lines 13-16) teaches that the antenna features a broadband behavior.

Regarding claim 10, as applied to claim 1, Yu teaches that the antenna is used to operate simultaneously for several communication systems.

Regarding claim 11, as applied to claim 1, Yu (col 2 lines 16-20) teaches that the active patch can be fed to provide elliptical polarization or circular polarization.

Regarding claim 18, as applied to claim 1, Figure 3 of Yu shows that the active and parasitic patches are printed over a dielectric substrate.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yu.

Yu discloses a multi-frequency microstrip patch antenna device including a ground plane and a first conductive layer, the conducting layer acting as the active patch for the whole antenna device, the active patch being fed at least at a point of the conducting layer, wherein the microstrip patch antenna comprises at least two additional conducting layers acting as parasitic patches, the parasitic patches being placed underneath the first active patch at different levels between the active patch and the ground plane. Yu also teaches that the antenna elements can be constructed to various sizes in order to accommodate operation in different frequency ranges (col 2 lines 20-23). It would have been obvious to one of ordinary skill in the art at the time the

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invention was made to dimension the sizes of the active and parasitic patches to operate at any combination of frequency bands such as AMP, GSM900, GSM1800, PCS1899, CDMA, UMTS, Bluetooth, TACS, ETACS, DECT, radio FM/AM and GPS.

Allowable Subject Matter

5. Claims 2-4, 12, 14-17 and 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 2, Yu fails to further teach, among other features, that at least one of the parasitic patches includes a multilevel structure.

Regarding claim 3, Yu fails to further teach, among other features, that at least one of the parasitic patches includes a space-filling structure.

Regarding claim 4, Yu fails to further teach, among other features, that the active patch includes a multilevel structure, a space-filling structure of a combination of a multilevel structure and a space-filling structure.

Regarding claim 12, Yu fails to further teach, among other features, that at least one of the patches is larger than the operating wavelength and at least a portion of the perimeter of the patch is a space-filling curve and the antenna is operated at a localized resonating mode of order larger than one for the particular patch.

Regarding claim 14, Yu fails to further teach, among other features, that the center of at least one patch is non-aligned with a vertical axis orthogonally crossing the active patch at its centroid.

Regarding claim 15, Yu fails to further teach, among other features, that the at least one patch is not horizontally aligned with respect to the other patches.

Regarding claim 16, Yu fails to further teach, among other features, that the conducting post crossing all the layers through an aperture at each of the parasitic patches **and** that the conducting post being electromagnetically coupled to the active patch either by means of ohmic contact or capacitive coupling.

Regarding claim 17, Yu fails to further teach, among other features, that the antenna being fed by means of a microstrip line placed underneath the ground plane and coupled to the upper patch by means of a slot on each individual parasitic patch and on the ground plane.

Regarding claim 19, Yu fails to further teach, among other features, that the claimed dielectric substrate of the microstrip patch antenna device is a portion of a window glass of a motor vehicle.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- US 4,401,988 discloses a multilayer microstrip antenna comprising a parasitic patch disposed below an active patch.
- US 5,307,075 discloses a microstrip antenna having stacked conductive patches.
- US 5,497,164 discloses a multilayer microstrip antenna comprising a plurality of parasitic patches disposed above an active patch.
- US 6,118,406 discloses a microstrip antenna having stacked conductive patches.

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- US 6,133,882 discloses a multilayer microstrip antenna comprising a plurality of parasitic patches disposed above an active patch.
- US 6,348,892 discloses a multilayer microstrip antenna comprising an active patch and a parasitic patch.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hoang V. Nguyen whose telephone number is (571) 272-1825. The examiner can normally be reached on Mondays-Fridays from 8:00 a.m. to 4:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tim Callahan can be reached on (571) 272-1740. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

9. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Hvn
9/13/06



HOANG V. NGUYEN
PRIMARY EXAMINER